

REMARKS

Claims 1-24, 32-43, 51-77, 85-90, 92-105, 112-123 and 164 are pending and have been rejected.

Brown and Birleson

Claims 1-14, 19-21, 32-37, 42, 43, 51-77, 85-90, 92-95, 100-102, 112-118, 122, 123 and 164 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,366,622 B1 (“Brown”) in view of U.S. Patent No. 6,714,776 B1 (“Birleson”). Applicants respectfully traverse the rejections for at least the reasons as set forth below.

A.

Claim 1 recites that “the receiver comprises a **low intermediate frequency** (IF) heterodyne architecture”.

The Office Action Made Final mailed January 26, 2009 (“Office Action Made Final”) states that Brown does not teach a low intermediate frequency heterodyne architecture. On the other hand, the Office Action Made Final states that Birleson makes up for the teaching deficiencies of Brown. In particular, the Office Action Made Final indicates that at least these elements are taught in Birleson at col. 4, line 60 to col. 5, line 5.

Birleson at col. 4, line 60 to col. 5, line 5 mentions “45.75 MHZ” and “91.5 MHZ”. However, according to Birleson, these are not low intermediate frequencies.

The attention of the Examiner is respectfully directed to Birleson at col. 1, lines 13-15 (bold added) which states that “[t]elevision tuners generally convert a radio frequency (‘RF’) input into a **standard intermediate frequency** (‘IF’) signal in preparation for further processing of the signal.”

The attention of the Examiner is also respectfully directed to Birleson at col. 1, lines 7-10 (bold added) which states that “[t]his invention relates generally to tuners, and more specifically

to a system and method for a tuner which uses a single conversion to reduce a radio frequency input to a **standard intermediate frequency** signal.”

Since Birleson does not make up for the teaching deficiencies of Brown, the *prima facie* case of obviousness based on the combination of Brown and Birleson, as alleged, has not been presented.

It is respectfully requested that the rejection under 35 U.S.C. § 103(a) based on the combination of Brown and Birleson, as alleged, be withdrawn with respect to claim 1.

B.

In addition, claim 1 recites “wherein the receiver comprises a low intermediate frequency (IF) heterodyne architecture, wherein the transmitter, the receiver and a local oscillator (LO) are integrated on a **single integrated circuit chip**”.

The Office Action Made Final states that Brown does not teach at least these elements as set forth in claim 1. On the other hand, the Office Action Made Final states that Birleson makes up for the teaching deficiencies of Brown. In particular, the Office Action Made Final indicates that at least these elements are taught in Birleson at col. 4, line 60 to col. 5, line 5.

It is respectfully noted that Birleson at col. 4, line 60 to col. 5, line 5 is describing FIG. 1 of Birleson. With respect to FIG. 1, Birleson states that the television tuner 100 comprises “**three integrated circuits**: preamplifier and mixer 105, IF and baseband signal processor 110 and frequency synthesizer and InterIntegrated Circuit (‘IIC’ or ‘I²C’) bus interface 115. Television tuner 100 also comprises **a plurality of discrete components**, including bandpass and image reject notch filter 104, bandpass and image reject notch filter 112, surface acoustic wave (‘SAW’) filter 116, video carrier filter 124, and audio carrier phase shifter 160.” Birleson at col. 4, lines 24-32 (bold added).

Since Birleson does not make up for the teaching deficiencies of Brown, the *prima facie* case of obviousness based on the combination of Brown and Birleson, as alleged, has not been

presented.

It is respectfully requested that the rejection under 35 U.S.C. § 103(a) based on the combination of Brown and Birleson, as alleged, be withdrawn with respect to claim 1.

C.

Claim 1 also recites “wherein an output of the VCO is operatively coupled to an input of the **frequency divider** and to an input of the mixer, wherein an output of **frequency divider** is operatively coupled to the input of the mixer”.

The Office Action Made Final states that Brown does not teach at least these elements as set forth in claim 1. On the other hand, the Office Action states that Birleson makes up for the teaching deficiencies of Brown. In particular, the Office Action Made Final indicates that at least these elements are taught in Birleson at col. 5, lines 6-15, Abstract and col. 2, lines 29-46.

The Abstract of Birleson makes no mention of a frequency divider.

Birleson at col. 5, lines 6-15 mentions a VCO, but does not mention a frequency divider.

Birleson at col. 2, lines 29-46 mentions I and Q terms that are 90 degrees apart, but does not mention a frequency divider.

Since Birleson does not make up for the teaching deficiencies of Brown, the *prima facie* case of obviousness based on the combination of Brown and Birleson, as alleged, has not been presented.

It is respectfully requested that the rejection under 35 U.S.C. § 103(a) based on the combination of Brown and Birleson, as alleged, be withdrawn with respect to claim 1.

D.

It is respectfully submitted that it is improper to combine Brown and Birleson since the Brown and Birleson teach away from each other.

The M.P.E.P. states that “[i]t is improper to combine references where the references

teach away from their combination.” M.P.E.P. § 2145(X)(D)(2).

As noted previously, Birleson teaches using architecture that processes standard intermediate frequency signals filtering those standard intermediate frequency signals with a SAW filter 116. See, e.g., Birleson at col. 1, lines 7-10 and lines 14-16; and FIG. 1.

On the other hand, Brown teaches away from intermediate frequencies and SAW filters. Brown at col. 1, lines 45-51 states that “[s]urface acoustic wave (SAW) and ceramic technology are typically used for the filtering depending on the frequency of operation. Although these respective technologies have improved in terms of size and performance they are still relatively large. Moreover, due to the relatively high frequency of the most IFs, it is not realistic, yet, to implement this filter using integrated circuit (IC) techniques.”

Instead, Brown teaches direct conversion receiver architectures as an alternative to intermediate frequency receiver architectures. Brown at col. 1, lines 56-65 lists five advantages of direct conversion receiver architectures over intermediate frequency receiver architectures: 1) no need for high-Q filters (like SAW filters); 2) limited number of RF circuit blocks; 3) single oscillator; 4) smallest size solution since bulky off-chip filters (like SAW filters) are eliminated; and 5) low-pass channel filters (unlike SAW filters) are readily integrated.

For at least the above reasons, it is respectfully submit that Brown and Birleson should not be combined and that the obviousness rejection based on the combination of Brown and Birleson, as alleged, cannot be maintained.

It is respectfully requested that the rejection under 35 U.S.C. § 103(a) based on the combination of Brown and Birleson, as alleged, be withdrawn with respect to claim 1.

E.

It is respectfully requested that the rejection under 35 U.S.C. § 103(a) based on, at least in part, on the combination of Brown and Birleson be withdrawn with respect to claim 1 and its rejected dependent claims.

Similar or same arguments, if applicable, made with respect to claim 1 can be made with respect to the other independent claims.

It is respectfully requested that the rejections under 35 U.S.C. § 103(a) based on, at least in part, on the combination of Brown and Birleson be withdrawn with respect to all pending claims.

It is believed that claims 1-24, 32-43, 51-77, 85-90, 92-105, 112-123 and 164 are in condition for allowance.

Brown and Chen

Claims 16-18, 39-41, 97-99, 22-24, 103-105 and 119-121 stand rejected under 35 U.S.C. § 103(a) as being obvious over the combination of Brown, Birleson and U.S. Patent No. 5, 940,456 ("Chen").

A.

The same and/or similar arguments, if applicable, as made above with respect to rejections based, in part, on the combination of Brown and Birleson, as alleged, are also applicable here.

In addition, Applicants respectfully note that, in previous responses, Applicants have previously argued that Brown and Chen teach away from each other. These arguments are reproduced below so that the Examiner might address them individually.

B.

In a previous Office Action mailed June 2, 2008, it is respectfully submitted that the Examiner provides a conclusory statement without providing any specific and factual evidence.

In particular, the Examiner states that Applicants argue that Brown teaches away from Chen from each other. In response, the Examiner states "[i]n response, Brown does not teach away of Chen. Therefore, the combination of Brown and Chen can be maintained." Office

Action mailed June 2, 2008 at page 11.

It is respectfully submitted that the Examiner provides no evidence to counter Applicants' rebuttal evidence.

It is respectfully noted that to rebut a *prima facie* case of obviousness, Applicants can show, under M.P.E.P. § 2145(X)(D)(2), that "[i]s improper to combine reference where the references teach away from their combination".

The specific and factual rebuttal evidence provided by Applicants previously:

Brown specifically teaches away from the use of frequency multiplier circuitry and frequency divider circuitry.

"Operating the VCO 248 at the same frequency as the incoming RF signal has the **advantage of eliminating the need for multiplier or divider circuitry** that would normally be associated with the amplifier 252. **Eliminating this additional circuitry that is traditionally used results in a lower current, smaller and lower cost solution.**" Brown at col. 17, lines 18-23.

On the other hand, Chen, not only uses frequency multiplier circuitry and frequency divider circuitry, but needs to use frequency multiplier circuitry and frequency divider circuitry to facilitate the Chen invention. See, e.g., Chen at FIG. 5 at "Divide By N" block 328, "Divide by K" block 326 and "Multiply by (N+1)" block 330. Chen must use frequency multiplier circuitry and frequency divider circuitry to facilitate the synchronization that is necessary for a synchronous plesiochronous digital hierarchy (SPDH) system. As explained, Chen needs the frequency multiplier circuitry and the frequency divider circuitry to "send exactly one SYNC byte and N bytes of data for every N+1 clock cycles of the clock". Chen at col. 7, lines 28-30.

Thus, while Chen requires frequency multiplier circuitry and frequency divider circuitry, Brown teaches away from Chen by finding it advantageous to eliminate "the need for multiplier or divider circuitry".

Since Brown teaches away from Chen, it is respectfully submitted that M.P.E.P. § 2145(X)(D)(2) states that it is improper to combine Brown and Chen.

Thus, Applicants have provided specific and factual evidence in Brown that rebuts the *prima facie* case of obviousness. This manner of rebutting a *prima facie* case of obviousness is well established in the M.P.E.P. under M.P.E.P. § 2145 entitled "Consideration of Applicant's Rebuttal Arguments".

On the other hand, it is respectfully submitted that the Examiner has provided no specific and factual evidence that rebuts Applicants' specific and factual rebuttal evidence.

It is respectfully requested that the Examiner reconsider the specific and factual rebuttal evidence presented herein by Applicants.

C.

Applicants also provided specific and factual rebuttal evidence in Chen that Chen teaches away from wireless communications and has teaches that wired communications are superior.

The specific and factual rebuttal evidence provided by Applicants previously:

In fact, Chen states that "[o]ne of the most important communication media is fiber optic because it can transmit signals having extremely high signaling rate and is immune to many sources of noise". Chen at col. 2, lines 9-11.

Brown's teaching of a radio of wireless communications teaches away from Chen's teaching of a SPDH system for use with a fiber optic system. Brown's radio is vulnerable to many types of noise that are specific to wireless radios and yet are not an issue for Chen's fiber optic system. Brown's radio is subject to multipath and external radio sources that cause noise. Thus, Brown's radio teaches away from Chen's fiber optic system uses cable to shield and to guide the cable signal, thereby making the cable signal immune to multipath and external radio

issues.

Since Brown teaches away from Chen, it is respectfully submitted that M.P.E.P. § 2145(X)(D)(2) states that it is improper to combine Brown and Chen.

Thus, Applicants have provided specific and factual evidence in Chen that rebuts the *prima facie* case of obviousness. This manner of rebutting a *prima facie* case of obviousness is well established in the M.P.E.P. under M.P.E.P. § 2145 entitled “Consideration of Applicant’s Rebuttal Arguments”.

On the other hand, it is respectfully submitted that the Examiner has provided no specific and factual evidence that rebuts Applicants’ specific and factual rebuttal evidence.

It is respectfully requested that the Examiner reconsider the specific and factual rebuttal evidence presented herein by Applicants.

D.

In view of at least the above, the rejection under 35 U.S.C. § 103(a) based, at least in part, on the combination of Chen and Brown, as alleged, should not be maintained.

Conclusion

Applicants do not necessarily agree or disagree with the Examiner’s characterization of the documents made of record, either alone or in combination, or the Examiner’s characterization of recited claim elements. Furthermore, Applicants respectfully reserve the right to argue the characterization of the documents of record, either alone or in combination, to argue what is allegedly well known, allegedly obvious or allegedly disclosed, or the characterization of the recited claim elements should that need arise in the future.

Applicants respectfully reserve the right to pursue, without prejudice, amended, cancelled and/or withdrawn subject matter as set forth in the claims in a related and/or continuing

U.S. Application No. 09/634,552, filed August 8, 2000

Attorney Docket No. 15258US02

Response AF dated March 26, 2009

In Response to Office Action Made Final mailed January 26, 2009

application.

With respect to the present application, Applicants hereby rescind any disclaimer of claim scope made in the parent application or any predecessor or related application. The Examiner is advised that any previous disclaimer of claim scope, if any, and the alleged prior art that it was made to allegedly avoid, may need to be revisited. Nor should a disclaimer of claim scope, if any, in the present application be read back into any predecessor or related application.

In view of at least the foregoing, it is respectfully submitted that the present application is in condition for allowance. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the below-listed telephone number.

The Commissioner is hereby authorized to charge any additional fees, to charge any fee deficiencies or to credit any overpayments to the deposit account of McAndrews, Held & Malloy, Account No. 13-0017.

Date: March 26, 2009

Respectfully submitted,

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